SUPER®

SUPER X5DE8-GG
SUPER X5DEI-GG
SUPER X5DEE-M

USER'S MANUAL

Revision 1.0b

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Preface

About This Manual

This manual is written for system integrators, PC technicians and knowledgeable PC users. It provides information for the installation and use of the SUPER X5DE8-GG/X5DEI-GG/X5DEE-M serverboard. The SUPER X5DE8-GG/X5DEI-GG/X5DEE-M supports single or dual Intel® 604-pin Xeon™ processors at a 533/400 MHz front side bus - please refer to the motherboard specifications pages on our web site (http://www.supermicro.com/Product_page/product-m.htm) for updates on supported processors. This product is intended to be professionally installed.

Manual Organization

Chapter 1 begins with a checklist of what should be included in your mainboard box, describes the features, specifications and performance of the motherboard and provides detailed information about the chipset.

Chapter 2 begins with instructions on handling static-sensitive devices. Read this chapter when you want to install the processor and DIMM memory modules and when mounting the mainboard in the chassis. Also refer to this chapter to connect the floppy and hard disk drives, SCSI drives, the IDE interfaces, the parallel and serial ports, the keyboard and mouse, the power supply and various control panel buttons and indicators.

If you encounter any problems, see **Chapter 3**, which describes troubleshooting procedures for the video, the memory and the setup configuration stored in CMOS. For quick reference, a general FAQ [Frequently Asked Questions] section is provided. Instructions are also included for contacting technical support. In addition, you can visit our web site (at www.supermicro.com/techsupport.htm) for more detailed information.

Chapter 4 includes an introduction to BIOS and provides detailed information on running the CMOS Setup utility.

Appendix A gives information on BIOS POST messages.

Appendix B provides BIOS POST codes.

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Chapter 1
Introduction

1-1 Overview

Checklist

Congratulations on purchasing your computer motherboard from an acknowledged leader in the industry. Supermicro boards are designed with the utmost attention to detail to provide you with the highest standards in quality and performance.

Please check that the following items have been included with your motherboard. If anything listed here is damaged or missing, contact your retailer.

One (1) Supermicro Mainboard

One (1) ribbon cable for IDE devices

One (1) floppy ribbon cable

One (1) USB cable

One (1) COM port (serial) cable

One (1) I/O backpanel shield

One (1) Supermicro CD or diskettes containing drivers and utilities

One (1) User's/BIOS Manual

Two (2) Pentium 4 Xeon active heatsinks (FAN-042, retail only)

Two (2) heatsink retention clip kits (SKT-095-604)

SCSI Accessories (X5DE8-GG only)

One (1) 68-pin LVD Ultra320/160 SCSI cable

One (1) set of SCSI driver diskettes

One (1) SCSI manual

Contacting Supermicro

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Email: support@supermicro.com.tw
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Notes

Figure 1-1. SUPER X5DE8-GG Image

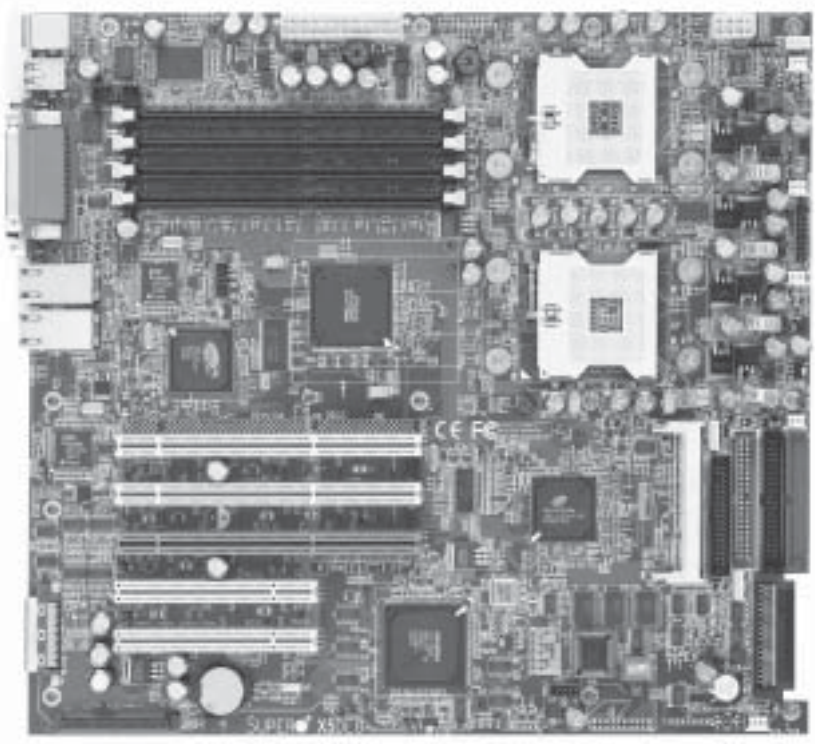
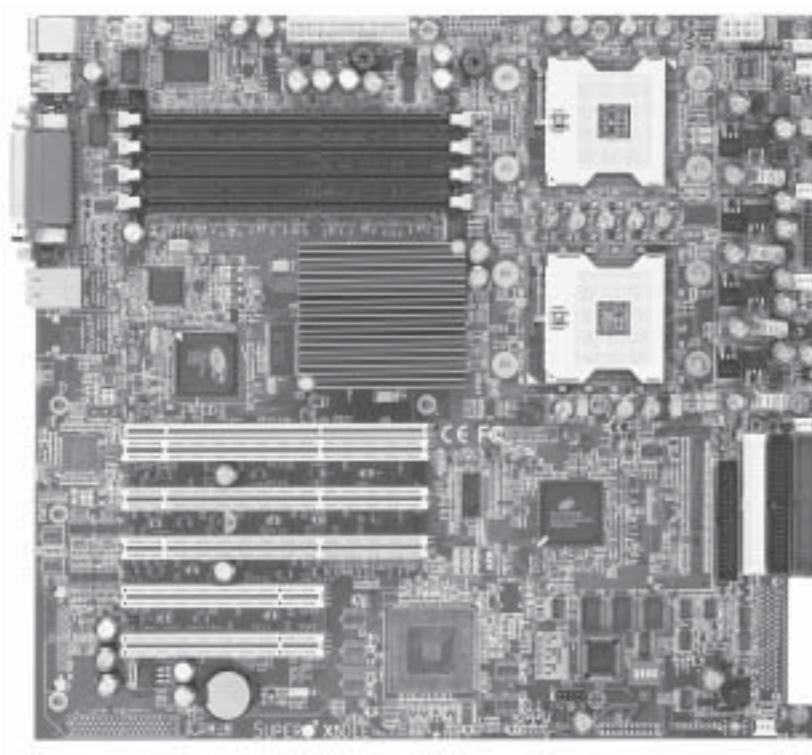


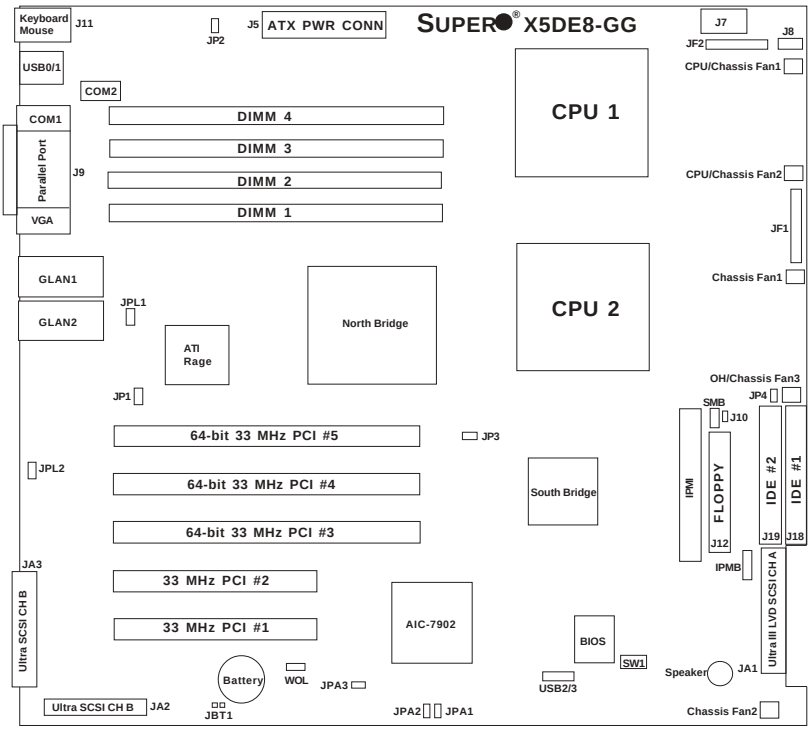
Figure 1-2. SUPER X5DEE-M/(X5DEI-GG)* Image



***Note:**

The X5DEI-GG has the same basic layout as the X5DEE-M but has two Gb Ethernet ports instead of a single 10/100 Mb Ethernet port.

Figure 1-3. SUPER X5DE8-GG Layout
(not drawn to scale)



Notes: Jumpers not noted are for test purposes only.
The external SCSI port at JA3 is designed for use with rackmount chassis only.
The JA1 and JA2 ports should be used in tower configurations.

Also see Chapter 2 for the locations of the I/O ports and Front Control Panel (JF1/ JF2) connectors and for details on jumper settings and pin definitions.

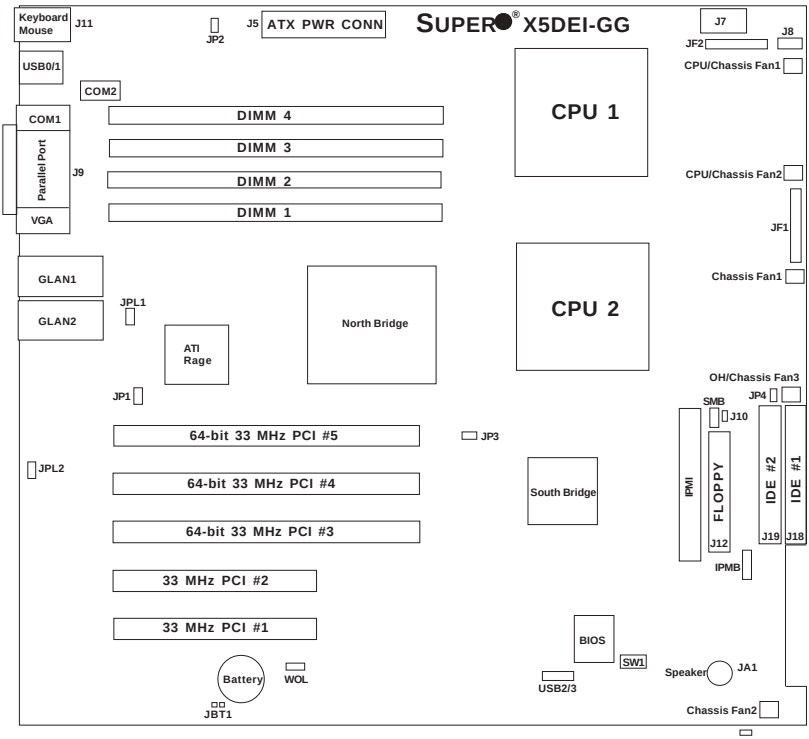
X5DE8-GG Quick Reference

Jumper	Description	Default Setting
JBT1	CMOS Clear	See Chapter 2
JF2	Speaker Enable (page 2-12)	Close 6-7 (Enabled)
JP1	VGA Enable/Disable	Pins 1-2 (Enabled)
JP2	Watch Dog Enable/Disable	Open (Disabled)
JP3	System (Front Side) Bus Speed	Pins 1-2 (Auto MHz)
JP4	OH/Chassis Fan Select	Open (OH Fan)
JPA1/JPA2	SCSI CH A/B Termination	Open (Enabled)
JPA3	SCSI Enable/Disable	Pins 1-2 (Enabled)
JPL1	LAN1 Enable/Disable	Pins 1-2 (Enabled)
JPL2	LAN2 Enable/Disable	Pins 1-2 (Enabled)

Switch	Description
DIP Switch 1	Processor Speed

Connector	Description
ATX PWR CONN	Primary ATX Power Connector
COM1/COM2	COM1/COM2 Serial Port Connector
CPU/CHS/OH FAN	CPU/Chassis/Overheat Fan Headers
DIMM1-DIMM4	Memory (RAM) Slots
GLAN1/2	G-bit Ethernet Ports 1and 2
IPMI	IPMI 1.5 Slot (for daughter card)
J7	Processor Power Connector
J8	Third Power Supply Fail Header
J9	Parallel (Printer) Port
J10	Chassis Intrusion Header
J11	PS/2 Keyboard/Mouse Ports
J12	Floppy Disk Drive Connector
J18/19	IDE1/2 Hard Disk Drive Connector
JA1/JA2	Ultra320 LVD SCSI CH A/B Connector
JA3	Ultra SCSI CH B Connector
JF1	Front Control Panel Connector
JF2	Speaker/PWR LED Headers
JWOR	Wake-on-Ring Header
USB0/1	Universal Serial Bus Ports
USB2/3	Additional USB Headers
WOL	Wake-on-LAN Header

Figure 1-4. SUPER X5DEI-GG/X5DEE-M Layout
(not drawn to scale)



Notes: Jumpers not noted are for test purposes only.
The X5DEI-GG has two Gb Ethernet ports while the X5DEE-M has a single 10/100 Mb Ethernet port.

Also see Chapter 2 for the locations of the I/O ports and Front Control Panel (JF1/JF2) connectors and for details on jumper settings and pin definitions.

X5DEI-GG/X5DEE-M* Quick Reference

Jumper	Description	Default Setting
JBT1	CMOS Clear	See Chapter 2
JF2	Speaker Enable (page 2-12)	Close 6-7 (Enabled)
JP1	VGA Enable/Disable	Pins 1-2 (Enabled)
JP2	Watch Dog Enable/Disable	Open (Disabled)
JP3	System (Front Side) Bus Speed	Pins 1-2 (Auto MHz)
JP4	OH/Chassis Fan Select	Open (OH Fan)
JPL1*	LAN1 Enable/Disable	Pins 1-2 (Enabled)
JPL2*	LAN2 Enable/Disable	Pins 1-2 (Enabled)

Switch	Description
DIP Switch 1	Processor Speed

Connector	Description
ATX PWR CONN	Primary ATX Power Connector
COM1/COM2	COM1/COM2 Serial Port Connector
CPU/CHS/OH FAN	CPU/Chassis/Overheat Fan Headers
DIMM1-DIMM4	Memory (RAM) Slots
GLAN1/2*	G-bit Ethernet Ports 1and 2
IPMI	IPMI 1.5 Slot (for daughter card)
J7	Processor Power Connector
J8	Third Power Supply Fail Header
J9	Parallel (Printer) Port
J10	Chassis Intrusion Header
J11	PS/2 Keyboard/Mouse Ports
J12	Floppy Disk Drive Connector
J18/19	IDE1/2 Hard Disk Drive Connector
JF1	Front Control Panel Connector
JF2	Speaker/PWR LED Headers
USB0/1	Universal Serial Bus Ports
USB2/3	Additional USB Headers
WOL	Wake-on-LAN Header

*The X5DEI-GG has two Gb Ethernet ports while the X5DEE-M has a single 10/100 Mb Ethernet port.

Motherboard Features

CPU

- Single or dual Intel® 604-pin Xeon™ processors at a 533/400 MHz front side (system) bus speed.

  Note: Please refer to the motherboard specifications pages on our web site (http://www.supermicro.com/Product_page/product-m.htm) for updates on supported processors.

Memory

- Four 184-pin DIMM sockets supporting up to 4 GB of registered ECC PC2100 (DDR-266) SDRAM

  Note: See Section 2-3 for details.

Chipset

- ServerWorks GC-SL

Expansion Slots

- Three 64-bit, 33 MHz PCI
- Two 32-bit, 33 MHz PCI

BIOS

- 4 Mb AMI® Flash ROM
- APM 1.2, DMI 2.1, PCI 2.2, ACPI 1.0, Plug and Play (PnP), SMBIOS 2.3

PC Health Monitoring

- Onboard voltage monitors for CPU cores, chipset voltage, 3.3V, +5V, +12V and 3.3V standby
- Fan status monitor with firmware/software on/off control
- CPU/chassis temperature monitors
- Environmental temperature monitor and control
- CPU fan auto-off in sleep mode
- CPU slow-down on temperature overheat
- CPU overheat LED header
- Power-up mode control for recovery from AC power loss
- Auto-switching voltage regulator for CPU core
- System overheat LED and control
- Chassis intrusion detection
- System resource alert

ACPI Features (optional)

- Microsoft OnNow
- Slow blinking LED for suspend state indicator
- Main switch override mechanism

Onboard I/O

- AIC-7902 for dual channel Ultra320 SCSI (X5DE8-GG)
- Zero channel SCSI RAID support (X5DE8-GG)
- Integrated ATI Rage XL graphics controller
- Two Intel 82540EM Gb Ethernet controllers (X5DE8-GG, X5DEI-GG)
- One Intel 82551 10/100 Mb Ethernet controller (X5DEE-M)
- 2 EIDE Ultra DMA/100 bus master interfaces
- 1 floppy port interface (up to 2.88 MB)
- 2 Fast UART 16550A compatible serial ports
- 1 EPP/ECP Parallel Port
- PS/2 mouse and PS/2 keyboard ports
- Up to 4 USB 1.1 (Universal Serial Bus) ports

Other

- Internal/external modem ring-on
- Wake-on-LAN (WOL)
- Console redirection
- IPMI (optional)

CD/Diskette Utilities

- BIOS flash upgrade utility and device drivers

Dimensions

- Extended ATX: 12" x 13.05" (304.8 x 331.5 mm)

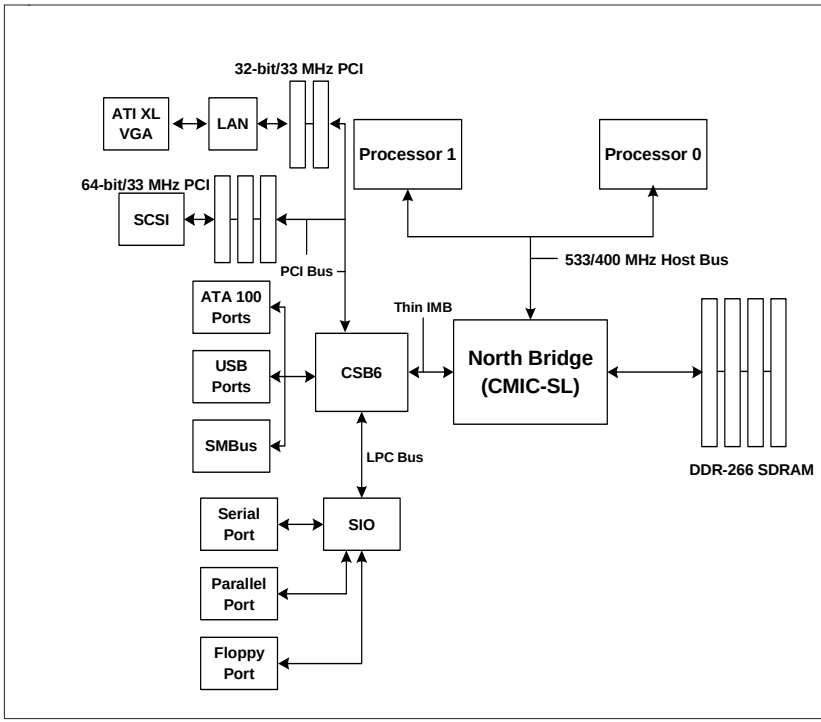


Figure 1-5. ServerWorks Grand Champion SL Chipset: System Block Diagram

Note: This is a general block diagram. Please see the previous Motherboard Features Section for details on the features of each motherboard.

1-2 Chipset Overview

The Grand Champion SL™ is a fourth-generation product of ServerWorks "Champion" chipset technology. The chipset for the X5DE8-GG/X5DEI-GG/ X5DEE-M is comprised of a North Bridge (CMIC-SL) and a South Bridge (CSB6).

The North Bridge interfaces directly to the processors via a 100 MHz Host bus and integrates the functions of the main memory subsystem and the IMB bus interface unit. The memory subsystem consists of a 4-DIMM configuration accessed over a 266 MHz memory bus at a peak bandwidth of 1.6 GB/sec.

The South Bridge provides various integrated functions, including the PCI bridge and support for UDMA100, security (passwords and system protection), Plug & Play, USBs, power management, interrupt controllers and the LPC Bus.

1-3 Special Features

ATI Graphics Controller

The X5DE8-GG/X5DEI-GG/X5DEE-M has an integrated ATI video controller based on the Rage XL graphics chip. The Rage XL fully supports sideband addressing and AGP texturing. This onboard graphics package can provide a bandwidth of up to 512 MB/sec over a 32-bit graphics memory bus.

BIOS Recovery

The BIOS Recovery function allows you to recover your BIOS image file if the BIOS flashing procedure fails (see Section 3-3).

Recovery from AC Power Loss

BIOS provides a setting for you to determine how the system will respond when AC power is lost and then restored to the system. You can choose for the system to remain powered off (in which case you must hit the power switch to turn it back on) or for it to automatically return to a power-

on state. See the Power Lost Control setting in the Advanced BIOS Setup section (Peripheral Device Configuration) to change this setting. The default setting is Always On.

1-4 PC Health Monitoring

This section describes the PC health monitoring features of the SUPER X5DE8-GG/X5DEI-GG/X5DEE-M. All have an onboard System Hardware Monitor chip that supports PC health monitoring.

Onboard Voltage Monitors for the CPU Cores, Chipset Voltage, +3.3V, +5V, +12V and +3.3V Standby

An onboard voltage monitor will scan these voltages continuously. Once a voltage becomes unstable, a warning is given or an error message is sent to the screen. Users can adjust the voltage thresholds to define the sensitivity of the voltage monitor.

Fan Status Monitor with Firmware/Software On/Off Control

The PC health monitor can check the RPM status of the cooling fans. The onboard 3-pin CPU and chassis fans are controlled by the power management functions. The thermal fan is controlled by the overheat detection logic.

Environmental Temperature Control

The thermal control sensor monitors the CPU temperature in real time and will turn on the thermal control fan whenever the CPU temperature exceeds a user-defined threshold. The overheat circuitry runs independently from the CPU. It can continue to monitor for overheat conditions even when the CPU is in sleep mode. Once it detects that the CPU temperature is too high, it will automatically turn on the thermal control fan to prevent any overheat damage to the CPU. The onboard chassis thermal circuitry can monitor the overall system temperature and alert users when the chassis temperature is too high.

CPU Fan Auto-Off in Sleep Mode

The CPU fan activates when the power is turned on. It continues to operate when the system enters Standby mode. When in sleep mode, the CPU will not run at full power, thereby generating less heat.

CPU Overheat LED and Control

This feature is available when the user enables the CPU overheat warning function in the BIOS. This allows the user to define an overheat temperature. When this temperature is exceeded, both the overheat fan and the warning LED are triggered.

System Resource Alert

This feature is available when used with Intel's LANDesk Client Manager (optional). LDCM is used to notify the user of certain system events. For example, if the system is running low on virtual memory and there is insufficient hard drive space for saving the data, you can be alerted of the potential problem.

Auto-Switching Voltage Regulator for the CPU Core

The auto-switching voltage regulator for the CPU core can support up to 20A current and auto-sense voltage IDs ranging from 1.4V to 3.5V. This will allow the regulator to run cooler and thus make the system more stable.

1-5 ACPI Features

ACPI stands for Advanced Configuration and Power Interface. The ACPI specification defines a flexible and abstract hardware interface that provides a standard way to integrate power management features throughout a PC system, including its hardware, operating system and application software. This enables the system to automatically turn on and off peripherals such as CD-ROMs, network cards, hard disk drives and printers. This also includes consumer devices connected to the PC such as VCRs, TVs, telephones and stereos.

In addition to enabling operating system-directed power management, ACPI provides a generic system event mechanism for Plug and Play and an operating system-independent interface for configuration control. ACPI leverages the Plug and Play BIOS data structures while providing a processor architecture-independent implementation that is compatible with both Windows 2000 and Windows NT 5.0.

Microsoft OnNow

The OnNow design initiative is a comprehensive, system-wide approach to system and device power control. OnNow is a term for a PC that is always on but appears to be off and responds immediately to user or other requests.

Slow Blinking LED for Suspend-State Indicator

When the CPU goes into a suspend state, the chassis power LED will start blinking to indicate that the CPU is in suspend mode. When the user presses any key, the CPU will wake-up and the LED will automatically stop blinking and remain on.

Main Switch Override Mechanism

When an ATX power supply is used, the power button can function as a system suspend button to make the system enter a SoftOff state. The monitor will be suspended and the hard drive will spin down. Depressing the power button again will cause the whole system to wake-up. During the SoftOff state, the ATX power supply provides power to keep the required circuitry in the system alive. In case the system malfunctions and you want to turn off the power, just depress and hold the power button for 4 seconds. This option can be set in the Power section of the BIOS Setup routine.

External Modem Ring-On

Wake-up events can be triggered by a device such as the external modem ringing when the system is in the SoftOff state. Note that external modem ring-on can only be used with an ATX 2.01 (or above) compliant power supply.

Wake-On-LAN (WOL)

Wake-On-LAN is defined as the ability of a management application to remotely power up a computer that is powered off. Remote PC setup, updates and asset tracking can occur after hours and on weekends so that daily LAN traffic is kept to a minimum and users are not interrupted. The motherboards have a 3-pin header (WOL) to connect to the 3-pin header on

a Network Interface Card (NIC) that has WOL capability. Wake-On-LAN must be enabled in BIOS. Note that Wake-On-Lan can only be used with an ATX 2.01 (or above) compliant power supply.

1-6 Power Supply

As with all computer products, a stable power source is necessary for proper and reliable operation. It is even more important for processors that have high CPU clock rates.

The SUPER X5DE8-GG/X5DEI-GG/X5DEE-M accommodates ATX power supplies. Although most power supplies generally meet the specifications required by the CPU, some are inadequate. You should use one that will supply at least 400W of power and includes the additional +12V, 8-pin power connector - an even higher wattage power supply is recommended for high-load configurations. Also your power supply must supply 1.5A for the LAN port(s).

NOTE: Auxiliary 12v power (J15) is necessary to support Intel Xeon CPUs. Failure to provide this extra power will result in the CPUs becoming unstable after only a few minutes of operation. See Section 2-5 for details on connecting the power supply cables.

It is strongly recommended that you use a high quality power supply that meets ATX power supply Specification 2.02 or above. It must also be SSI compliant (info at http://www.ssiforum.org/). Additionally, in areas where noisy power transmission is present, you may choose to install a line filter to shield the computer from noise. It is recommended that you also install a power surge protector to help avoid problems caused by power surges.

1-7 Super I/O

The disk drive adapter functions of the Super I/O chip include a floppy disk drive controller that is compatible with industry standard 82077/765, a data separator, write pre-compensation circuitry, decode logic, data rate selection, a clock generator, drive interface control logic and interrupt and DMA logic. The wide range of functions integrated onto the Super I/O greatly reduces the number of components required for interfacing with floppy disk drives. The Super I/O supports 360 K, 720 K, 1.2 M, 1.44 M or 2.88 M disk drives and data transfer rates of 250 Kb/s, 500 Kb/s or 1 Mb/s.It also provides two high-speed, 16550 compatible serial communication ports

(UARTs), one of which supports serial infrared communication. Each UART includes a 16-byte send/receive FIFO, a programmable baud rate generator, complete modem control capability and a processor interrupt system. Both UARTs provide legacy speed with baud rate of up to 115.2 Kbps as well as an advanced speed with baud rates of 250 K, 500 K, or 1 Mb/s, which support higher speed modems.

The Super I/O supports one PC-compatible printer port (SPP), Bi-directional Printer Port (BPP) , Enhanced Parallel Port (EPP) or Extended Capabilities Port (ECP).

The Super I/O provides functions that comply with ACPI (Advanced Configuration and Power Interface), which includes support of legacy and ACPI power management through an SMI or SCI function pin. It also features auto power management to reduce power consumption.

The IRQs, DMAs and I/O space resources of the Super I/O can flexibly adjust to meet ISA PnP requirements, which suppport ACPI and APM (Advanced Power Management).

Chapter 2
Installation

2-1 Static-Sensitive Devices

Electric-Static-Discharge (ESD) can damage electronic components. To prevent damage to your system board, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing the board from the antistatic bag.
- Handle the board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

Unpacking

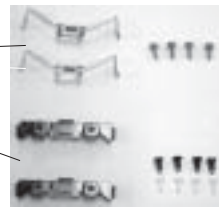
The motherboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

2-2 PGA Processor and Heatsink Installation

When handling the processor package, avoid placing direct pressure on the label area of the fan. Also, do not place the motherboard on a conductive surface, which can damage the BIOS battery and prevent the system from booting up.

IMPORTANT: Always connect the power cord last and always remove it before adding, removing or changing any hardware components. Make sure that you install the processor into the CPU socket **before** you install the CPU heat sink. (The pictures below show a 603-pin socket.)

1. Locate the following components, which are included in the shipping package.

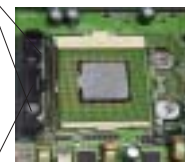


*These screws are for mounting the motherboard to the back panel of a chassis that has four mounting holes (as shown on right).

For chassis that do not have four mounting holes, use the anchor/peg assemblies:

2. Insert the white pegs into the black anchors. Do not force the white pegs all the way in - only about 1/3 of the way into the black anchors.

3. Place a retention bracket in the proper position and secure it by pressing pegs into two of the retention holes until you hear a *click*. The clicking sound indicates that the peg is locked and secured.



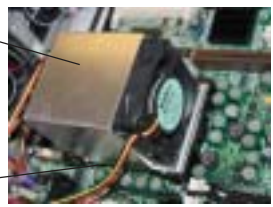
4. Secure the other retention bracket into position by repeating Step 3.

5. Lift the lever on the CPU socket: *lift the lever completely or you will damage the CPU socket when power is applied*. *(Install CPU1 first.)*

6. Insert the CPU in the socket, making sure that pin 1 of the CPU aligns with pin 1 of the socket (both corners are marked with a triangle - see Figure 2-1). When using only one CPU, install it into CPU socket #1 (socket #2 is automatically disabled if only one CPU is used).

7. Press the lever down until you hear it *click* into the locked position.

8. Apply the proper amount of thermal compound to the CPU die and place the heatsink and fan on top of the CPU.



9. Secure the heatsink by locking the retention clips into their proper position.

10. Connect the three wires of the CPU fan to the respective CPU fan connector.

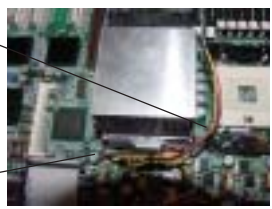
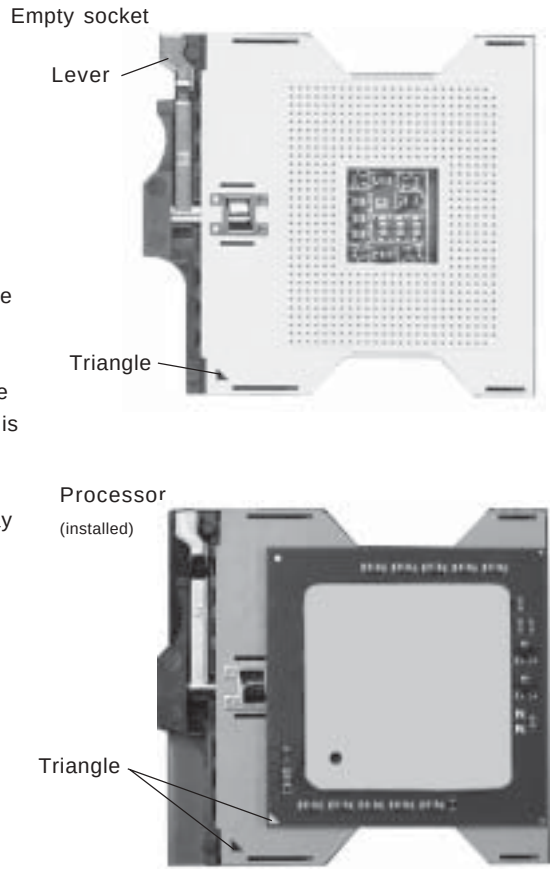


Figure 2-1. PGA604 Socket: Empty and with Processor Installed



Warning! Make sure you lift the lever completely when installing the CPU. If the lever is only partly raised, damage to the socket or CPU may result.

Mounting the Motherboard in the Chassis

All motherboards have standard mounting holes to fit different types of chassis. Make sure the location of all the mounting holes for both the motherboard and the chassis match. Although a chassis may have both plastic and metal mounting fasteners, metal ones are highly recommended because they ground the motherboard to the chassis. Make sure the metal standoffs click in or are screwed in tightly. Then use a screwdriver to secure the motherboard onto the motherboard tray.

2-3 Installing DIMMs

Note: Check the Supermicro web site for recommended memory modules: http://www.supermicro.com/TECHSUPPORT/FAQs/Memory_vendors.htm

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

DIMM Installation (See Figure 2-2)

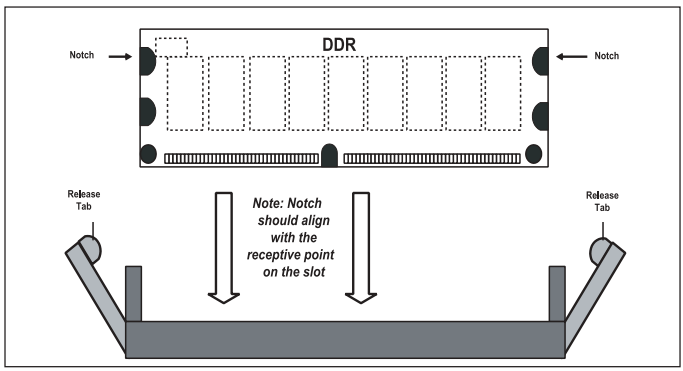
1. Insert the desired number of DIMMs into the memory slots, starting with Bank 1.
2. Insert each DIMM module vertically into its slot. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly.
3. Gently press down on the DIMM module until it snaps into place in the slot. Repeat for all modules (see step 1 above).

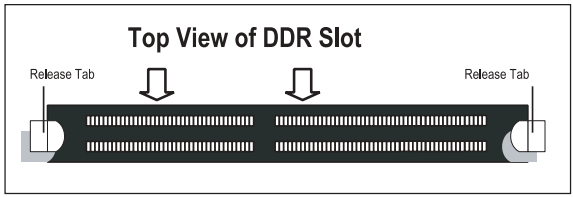
Memory Support

The X5DE8-GG/X5DEI-GG/X5DEE-M only supports registered ECC DDR-266 and 200 (PC2100 and PC1600) SDRAM memory. Do not mix both types.

Figure 2-2. Installing and Removing DIMMs

To Install: Insert module vertically and press down until it snaps into place. Pay attention to the alignment notch at the bottom.



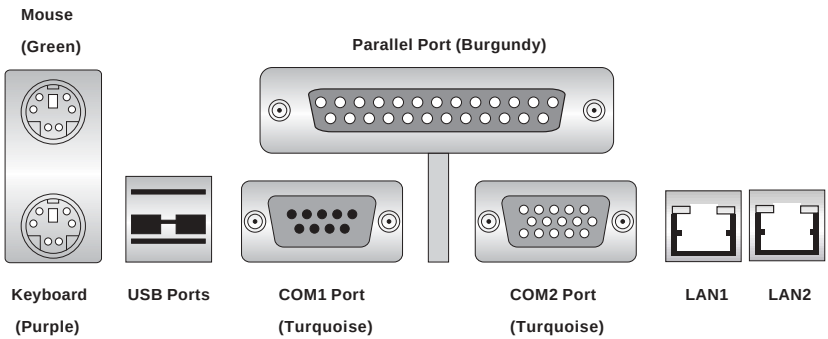


To Remove:
Use your thumbs to gently push near the edge of both ends of the module. This should release it from the slot.

2-4 I/OPorts/Control Panel Connectors

The I/O ports are color coded in conformance with the PC 99 specification. See Figure 2-3 below for the colors and locations of the various I/O ports.

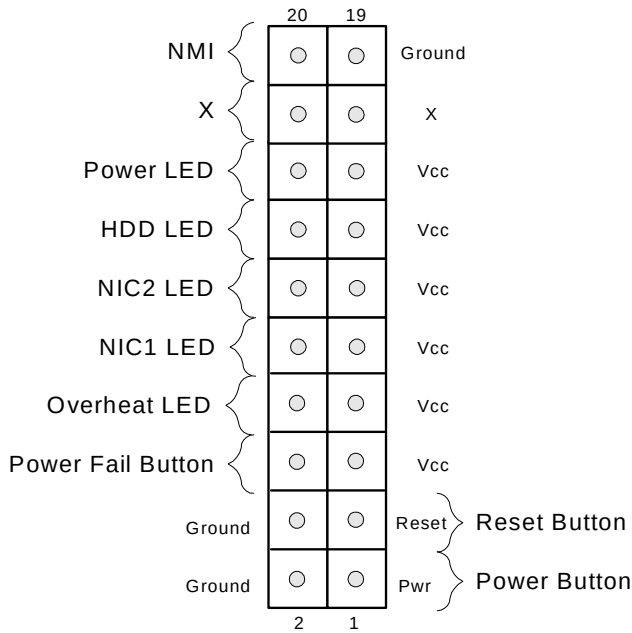
Figure 2-3. I/O Port Locations and Definitions



Front Control Panel

JF1 contains header pins for various buttons and indicators that are normally located on a control panel at the front of the chassis. These connectors are designed specifically for use with Supermicro server chassis. See Figure 2-4 for the descriptions of the various control panel buttons and LED indicators. Refer to the following section for descriptions and pin definitions.

Figure 2-4. JF1 Header Pins



2-5 Connecting Cables

ATX Power Connector

The main power supply connector on the X5DE8-GG/X5DEI-GG/ X5DEE-M meets the SSI (Superset ATX) 24-pin specification, however it also supports a 20-pin power supply connector. Make sure that the orientation of the connector is correct. See the table on the right for pin definitions.

ATX Power Supply 24-pin Connector Pin Definitions

Pin Number	Definition	Pin Number	Definition
13	+3.3V	1	+3.3V
14	-12V	2	+3.3V
15	COM	3	COM
16	PS_ON#	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	Res(NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

Processor Power Connector

In addition to the Primary ATX power connector (above), the 12v 8-pin Processor connector at J7 must also be connected to your power supply. See the table on the right for pin definitions.

8-Pin +12v Power Supply Connector (J7)

Pins	Definition
1 thru 4	Ground
5 thru 8	+12v

NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

NMI Button Pin Definitions (JF1)

Pin Number	Definition
19	Ground
20	Control

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

PWR_LED Pin Definitions (JF1)

Pin Number	Definition
15	Vcc
16	Control

HDD LED

The HDD LED connection (for IDE and SCSI Disk Drives) is located on pins 13 and 14 of JF1. Attach the hard drive LED cable here to display disk activity. See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)

Pin Number	Definition
13	Vcc
14	HD Active

NIC2 LED

The NIC LED connection for the LAN2 port is located on pins 11 and 12 of JF1. Attach the LAN2 LED cable to display network activity. Refer to the table on the right for pin definitions.

NIC2 LED Pin Definitions (JF1)

Pin Number	Definition
11	Vcc
12	GND

NIC1 LED

The NIC LED connection for the LAN1 port is located on pins 9 and 10 of JF1. Attach the LAN1 LED cable to display network activity. Refer to the table on the right for pin definitions.

NIC1 LED Pin Definitions (JF1)

Pin Number	Definition
9	Vcc
10	GND

Overheat LED (OH)

Connect an LED to the OH connection on pins 7 and 8 of JF1 to provide advanced warning of chassis overheating. Refer to the table on the right for pin definitions.

Overheat (OH) LED Pin Definitions (JF1)

Pin Number	Definition
7	Vcc
8	GND

Power Fail Button

The Power Fail Button connection is located on pins 5 and 6 of JF1. Refer to the table on the right for pin definitions.

Power Fail Button Pin Definitions (JF1)

Pin Number	Definition
5	Vcc
6	GND

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to the hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

Reset Pin Definitions (JF1)

Pin Number	Definition
3	Reset
4	Ground

Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in BIOS - see Chapter 4). To turn off the power when set to suspend mode, depress the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Connector Pin Definitions (JF1)

Pin Number	Definition
1	PW_ON
2	Ground

Chassis Intrusion

A Chassis Intrusion header is located at J10. Attach the appropriate cable to inform you of a chassis intrusion.

Universal Serial Bus (USB0/1)

Two USB ports are located beside the PS/2 keyboard/mouse ports. USB0 is the bottom connector and USB1 is the top connector. See the table on the right for pin definitions.

Universal Serial Bus Pin Definitions

USB0		USB1	
Pin Number	Definition	Pin Number	Definition
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	Ground	4	Ground
5	N/A	5	Key

Extra Universal Serial Bus Headers

Two additional USB headers (USB2/USB2) have been included on your motherboard. You will need a USB cable to use either connection. Refer to the tables on the right for pin definitions.

Front Panel Universal Serial Bus Pin Definitions

FPUSB0/FPUSB2		FPUSB1/FPUSB3	
Pin Number	Definition	Pin Number	Definition
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	Ground	4	Ground
5	N/A	5	Key

Serial Ports

The COM1 serial port is located under the parallel port (see Figure 2-3). COM2 is a header on the motherboard near the DIMM 4 slot. See the table on the right for pin definitions.

Serial Port Pin Definitions (COM1, COM2)

Pin Number	Definition	Pin Number	Definition
1	DCD	6	CTS
2	DSR	7	DTR
3	Serial In	8	RI
4	RTS	9	Ground
5	Serial Out	10	NC

GLAN 1/2 (Ethernet Ports)

Two G-bit Ethernet ports (designated GLAN1 and GLAN2) are located beside the VGA port on the IO backplane. These ports accepts RJ45 type cables.

Note: the X5DEE-M has a single 10/100 Mb port only.

ATX PS/2 Keyboard and PS/2 Mouse Ports

The ATX PS/2 keyboard and PS/2 mouse are located on J11. See the table at right for pin definitions. (See Figure 2-3 for the locations of each.)

PS/2 Keyboard and Mouse Port Pin Definitions (J11)

Pin Number	Definition
1	Data
2	NC
3	Ground
4	VCC
5	Clock
6	NC

Fan Headers

The X5DE8-GG/X5DEI-GG/X5DEE-M has five fan headers, which are designated CPU Chassis Fan1, CPU Chassis Fan2, Chassis Fan1, Chassis Fan2 and Overheat/Chassis Fan3. See the table on the right for pin definitions.

Fan Header Pin Definitions

Pin Number	Definition
1	Ground (black)
2	+12V (red)
3	Tachometer

Caution: Fan headers are DC power.

Power LED/Speaker (JF2)

On the JF2 header, pins 1-3 are for the PWR LED and pins 4-7 are for the speaker connection. See the table on the right for speaker pin definitions. Note: The speaker connector pins are for use with an external speaker. If you wish to use the onboard speaker, you should close pins 6-7 with a jumper.

Speaker Connector Pin Definitions (JF2)

Pin Number	Function	Definition
6	+	Red wire, Speaker data
7	Key	No connection
8		Key
9		Speaker data

Third Power Supply Fail Header

Connect a cable from your power supply to the J8 header to provide warning of power supply failure. This warning signal is passed through the PWR_LED pin on JF2 to indicate a power failure on the chassis. See the table on the right for pin definitions.

Third Power Supply Fail Header Pin Definitions (J8)

Pin Number	Definition
1	P/S 1 Fail Signal
2	P/S 2 Fail Signal
3	P/S 3 Fail Signal
4	Reset (from MB)

Note: This feature is only available when using redundant Supermicro power supplies.

Wake-On-LAN

The Wake-On-LAN header is designated WOL. See the table on the right for pin definitions. You must enable the LAN Wake-Up setting in BIOS to use this feature. You must also have a LAN card with a Wake-on-LAN connector and cable.

Wake-On-LAN Pin Definitions (WOL)

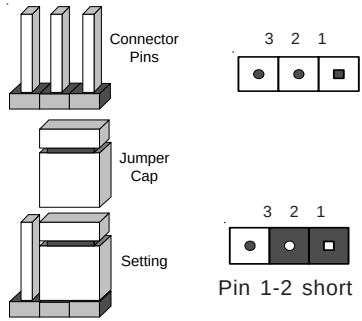
Pin Number	Definition
1	+5V Standby
2	Ground
3	Wake-up

2-6 Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

Note: On two pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.



CMOS Clear

JBT1 is used to clear CMOS. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To clear CMOS,

1) First shut down the system and unplug the power cord(s).

2) With the power disconnected, short the CMOS pads with a metal object such as a small screwdriver.

3) Remove the screwdriver (or shorting device).

4) Reconnect the power cord(s) and power on the system.

Note: *Do not use the PW_ON connector to clear CMOS*.

VGA Enable/Disable

JP1 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

VGA Enable/Disable Jumper Settings (JP1)

Jumper Position	Definition
1-2	Enabled
2-3	Disabled

Watch Dog Enable/Disable

Use JP2 to enable or disable the Watch Dog feature. The default position is open to disable it. When enabled, Watch Dog can reboot your PC if an application is "hung up" or the system goes down. See the table on the right for jumper settings.

Watch Dog Timer Enable/ Disable Jumper Settings (JP2)

Jumper Position	Definition
Open	Disabled
Closed	Enabled

System Bus Speed

JP3 allows you to select the system (front side) bus speed to 400 MHz, 533 MHz or Auto. The speed you select must conform to that of your processor(s). "Auto" is the default setting and will allow BIOS to determine and set the system bus speed. See the table on the right for jumper settings.

System Bus Speed Jumper Settings (JP39)

Jumper Position	Definition
Pins 1-2	Auto
Pins 2-3	400 MHz
Off	533 Mhz

OH/Chassis Fan Select

JP4 allows you to select the function of the OH/Chassis Fan: either as an overheat fan or as a chassis fan. The default position is open to use as an overheat fan. See the table on the right for jumper settings.

Overheat/Chassis Fan Select Jumper Settings (JP4)

Jumper Position	Definition
Open	Overheat Fan
Closed	Chassis Fan

SCSI Channel Termination Enable/Disable (X5DE8-GG)

Jumpers JPA1 and JPA2 allow you to enable or disable termination for each SCSI channel. Jumper JPA1 controls channel A and JPA2 controls channel B. The default setting is open to enable (teminate) both SCSI channels. If you wish to connect external SCSI devices, you should disable termination for the channel(s) you will be connecting them to. Note that the external SCSI port is for use with rackmount chassis only. See the table on the right for jumper settings.

SCSI Channel Termination Enable/Disable Jumper Settings (JPA1, JPA2)

Jumper Position	Definition
Open	Enabled
Closed	Disabled

SCSI Enable/Disable (X5DE8-GG)

The SCSI Termination jumper at JPA3 allows you to enable or disable the onboard SCSI controller. The normal (default) position is on pins 1-2 to enable (terminate) the onboard SCSI. See the table on the right for jumper settings.

SCSI Enable/Disable Jumper Settings (JPA3)

Jumper Position	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

LAN1/2 Enable/Disable

Change the setting of jumper JPL1 (for LAN1) or JPL2 (for LAN2) to enable or disable the Ethernet ports on the motherboard. See the table on the right for jumper settings. The default setting is enabled.

Note: the X5DEE-M has a single LAN port and thus a single jumper.

LAN1/2 Enable/Disable Jumper Settings (JPL1, JPL2)

Jumper Position	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

2-7 DIP Switch Settings

DIP Switch 1: Processor Speed

The red "DIP" switch labeled SW1 has four individual switches, which are used to set the speed of the processor.

The table on the right shows you the switch settings for the various speeds your processor may be able to run at. (This table is also silkscreened on the motherboard.)

Note: Most Intel processors have a fixed Core/Bus ratio that overwrites the setting of DIP Switch 1.

Processor Speed Selection (DIP Switch 1)

CPU	SW #1	SW #2	SW #3	SW #4	
1.3 GHz	ON		ON		
1.4 GHz		ON	ON		
1.5 GHz	ON	ON	ON		
1.6 GHz				ON	
1.7 GHz	ON			ON	
1.8 GHz		ON		ON	
1.9 GHz	ON	ON		ON	
2.0 GHz			ON	ON	< Default
2.1 GHz	ON		ON	ON	
2.2 GHz		ON	ON	ON	
2.4 GHz	ON	ON	ON	ON	

2-8 Onboard Indicators

GLAN LEDs (X5DE8-GG, X5DEI-GG)

The Gb Ethernet LAN ports (located beside the VGA port) has two LEDs. The yellow LED indicates activity while the other LED may be green, orange or off to indicate the speed of the connection. See the table at right for the functions associated with the second LED.

1 Gb LAN Right LED Indicator

LED Color	Definition
Off	No Connection
Green	100 MHz
Orange	1 GHz

2-9 Parallel Port, Floppy/Hard Disk Drive and SCSI Connections

Note the following when connecting the floppy and hard disk drive cables:

- The floppy disk drive cable has seven twisted wires.
- A red mark on a wire typically designates the location of pin 1.
- A single floppy disk drive ribbon cable has 34 wires and two connectors to provide for two floppy disk drives. The connector with twisted wires always connects to drive A, and the connector that does not have twisted wires always connects to drive B.

Parallel (Printer) Port Connector

The parallel (printer) port is located on J9. See the table on the right for pin definitions.

Parallel (Printer) Port Pin Definitions (J9)

Pin Number	Function	Pin Number	Function
1	Strobe-	2	Auto Feed-
3	Data Bit 0	4	Error-
5	Data Bit 1	6	Init-
7	Data Bit 2	8	SLCT IN-
9	Data Bit 3	10	GND
11	Data Bit 4	12	GND
13	Data Bit 5	14	GND
15	Data Bit 6	16	GND
17	Data Bit 7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

Floppy Connector

The floppy connector is located on JP12. See the table below for pin definitions.

Floppy Connector Pin Definitions (JP12)

Pin Number	Function	Pin Number	Function
1	GND	2	FDHDIN
3	GND	4	Reserved
5	Key	6	FDEDIN
7	GND	8	Index-
9	GND	10	Motor Enable
11	GND	12	Drive Select B-
13	GND	14	Drive Select A-
15	GND	16	Motor Enable
17	GND	18	DIR-
19	GND	20	STEP-
21	GND	22	Write Data-
23	GND	24	Write Gate-
25	GND	26	Track 00-
27	GND	28	Write Protect-
29	GND	30	Read Data-
31	GND	32	Side 1 Select-
33	GND	34	Diskette

IDE Connectors

There are no jumpers to configure the onboard IDE#1 and #2 connectors (at J18 and J19, respectively). See the table on the right for pin definitions.

IDE Connector Pin Definitions (J18, J19)

Pin Number	Function	Pin Number	Function
1	Reset IDE	2	GND
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	Key
21	DRQ3	22	GND
23	I/O Write-	24	GND
25	I/O Read-	26	GND
27	IOCHRDY	28	BALE
29	DACK3-	30	GND
31	IRQ14	32	IOCS16-
33	Addr 1	34	GND
35	Addr 0	36	Addr 2
37	Chip Select 0	38	Chip Select 1-
39	Activity	40	GND

Ultra320 SCSI Connectors (X5DE8-GG)

Refer to the table below for the pin definitions of the Ultra320 SCSI connectors located at JA1 and JA2.

68-pin Ultra320/160 SCSI Connectors (JA1, JA2)

Connector Contact Number	Signal Names	Connector Contact Number	Signal Names
1	+DB(12)	35	-DB(12)
2	+DB(13)	36	-DB(13)
3	+DB(14)	37	-DB(14)
4	+DB(15)	38	-DB(15)
5	+DB(P1)	39	-DB(P1)
6	+DB(0)	40	-DB(0)
7	+DB(1)	41	-DB(1)
8	+DB(2)	42	-DB(2)
9	+DB(3)	43	-DB(3)
10	+DB(4)	44	-DB(4)
11	+DB(5)	45	-DB(5)
12	+DB(6)	46	-DB(6)
13	+DB(7)	47	-DB(7)
14	+DB(P)	48	-DB(P)
15	GROUND	49	GROUND
16	DIFFSENS	50	GROUND
17	TERMPWR	51	TERMPWR
18	TERMPWR	52	TERMPWR
19	RESERVED	53	RESERVED
20	GROUND	54	GROUND
21	+ATN	55	-ATN
22	GROUND	56	GROUND
23	+BSY	57	-BSY
24	+ACK	58	-ACK
25	+RST	59	-RST
26	+MSG	60	-MSG
27	+SEL	61	-SEL
28	+C/D	62	-C/D
29	+REQ	63	-REQ
30	+I/O	64	-I/O
31	+DB(8)	65	-DB(8)
32	+DB(9)	66	-DB(9)
33	+DB(10)	67	-DB(10)
34	+DB(11)	68	-DB(11)

2-10 Installing Software Drivers

After all the hardware has been installed you must install the software drivers. The necessary drivers are all included on the Supermicro CD that came packaged with your motherboard. After inserting this CD into your CD-ROM drive, the display shown in Figure 2-5 should appear. (If this display does not appear, click on the My Computer icon and then on the icon representing your CD- ROM drive. Finally, double click on the S "Setup" icon.)

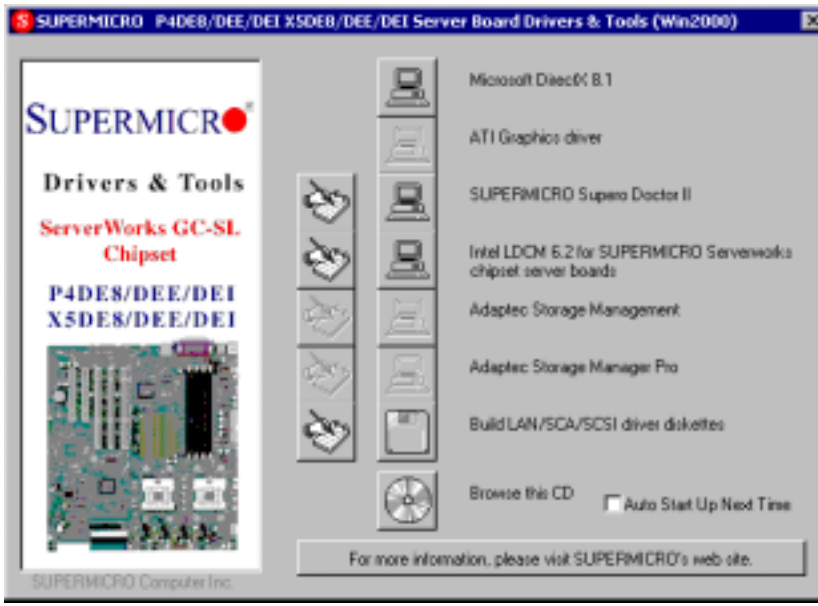


Figure 2-5. Driver/Tool Installation Display Screen

Click the icons showing a hand writing on paper to view the readme files for each item. The bottom icon with a CD on it allows you to view the entire contents of the CD.